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UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Forestry Sciences Laboratory
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October 28, 1969

REPLY TO: 4500 Research

SUBJECT: Douglas-fir Tussock Moth outbreaks

TO: F. Leroy Bond, Timber Management, Region 3
Federal Office Bldg.
517 Gold Ave. SW
Albuquerque, New Mexico 87101

Attn: Frank M. Yasinski, Pest Detection and Control

During the first week in October, Mitchell and I, with the help of Flake, visited the Douglas-fir tussock moth outbreak locations around Aztec Peak and on Pinal Mt. We made cocoon collections at each point. The data obtained from these collections are summarized as follows:

1. Aztec Peak (Murphy Ranch)

247 cocoons collected (including old cocoons)
107 cocoons had produced adult tussock moths
84 cocoons had been parasitized
33 cocoons contained virus killed pupae
23 cocoons contained dead pupae, cause unknown
48 cocoons had old egg masses (hatched)
0 cocoons had new (1969) egg masses

The emerged cocoons appeared to be old cocoons (prior to 1969). There was no indication of successful adult emergence this year. Most, if not all, the pupae killed by polyhedrosis appeared to be 1969 pupae, but I was not able to judge the age of parasite killed pupae, although I would guess they were mostly from last year. This population appears to have collapsed completely.

2. Aztec Peak (Workman Creek)

10 cocoons collected (total)
4 cocoons had produced adult tussock moths
1 cocoon contained pupae killed by polyhedrosis
3 cocoons contained pupae killed by parasites
2 cocoons had old (prior to 1969) egg masses
0 cocoons had new (1969) egg masses

This was a small collection, but the picture was essentially the same as at the Murphy Ranch -- a complete collapse of the population.

3. Aztec Peak (1/2 mile northwest of Murphy Ranch)

17 cocoons collected (total)
8 cocoons had adult emergence
7 cocoons had been parasitized
2 cocoons contained pupae killed by polyhedrosis
4 cocoons had old (prior to 1969) egg masses
0 cocoons had new (1969) egg masses

This was another small collection and again a total population collapse was indicated.

4. Pinal Mt.

454 cocoons collected (total)
162 cocoons had adult emergence (including last years')
286 cocoons had been parasitized
3 cocoons had pupae killed by a fungus
3 cocoons had living tussock moth pupae
24 cocoons had old (prior to 1969) egg masses
48 cocoons had new (1969 oviposition) egg masses

There was a striking difference in this collection compared to Aztec Peak. The ratio of new to old cocoons indicates a doubling of population.

There were no pupae killed by polyhedrosis virus, and I did not find any remains of virus killed larvae (they were common at Aztec Peak). Much of the parasitism was in new (1969) pupae, a number of parasites were still in their hosts. We do not have any reliable earlier collections from this area, so I do not have any evidence of presence or incidence of polyhedrosis in the larvae. The absence of any pupae killed by polyhedrosis would indicate, however, that the virus must have been at a very low incidence if it was present at all in 1969. I can only conclude that we should expect additional defoliation in 1970. Even if the virus should appear in 1970, I would expect heavy damage to the new flush of foliage before the disease could exert any degree of control.

In view of the tension resulting from the brush killer application, do you feel that public relations are such as to permit a virus test on Pinal next spring? If so, we should get a reasonably accurate measurement of the size of the infested area, and a representative egg mass collection as well as a physical assessment of the physical suitability of the stand and terrain.

C. G. THOMPSON
Project Leader

CGThompson:swd cc: Wright, Mason, Mitchell, Massey - Albuquerque, N.M.